

CLAIMS:

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1. A process for the preparation of a Grignard compound, said process comprising reacting an organic halide and magnesium metal in a solvent in the presence of a transition metal catalyst and an additional catalyst component, said transition metal catalyst comprising a transition metal selected from Periodic Table groups 3, 4, 5, 6, 7, 8, 9, 10 or 11, and one or more elements selected from groups 14, 15, 16 or 17 bonded to said transition metal, and said additional catalyst component comprising a compound of a metal of Periodic Table groups 1, 2 or 13, and one or more elements of Periodic Table groups 14, 15, 16 or 17 or hydrogen bonded to said metal of Periodic Table groups 1, 2 or 13.

2. The process according to claim 1, wherein said organic halide is selected from the group consisting of aromatic chloro compounds, chlorine-containing heterocycles and functionalized aromatic or heterocyclic chlorine compounds.
3. The process according to claim 1, wherein an ethereal solvent is used as said solvent.
4. The process according to claim 3, wherein tetrahydrofuran, monoglyme or diglyme are used as said ethereal solvent.
5. The process according to claim 1, wherein said transition metal catalyst contains Fe, Mn, Co or Cu.
6. The process according to claim 1, wherein one or more elements selected from the group consisting of the elements Cl, Br, I, O, N and C are bonded to said transition metal.

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17. The process according to claim 16, wherein an Mg or Li halide is employed as said cocatalyst.
18. The process according to claim 17, wherein a magnesium halide formed in situ is employed as said cocatalyst.
19. The process according to claim 1, wherein the reaction is performed at temperatures of up to the boiling temperature of the solvent employed.
20. The process according to claim 1, wherein said magnesium metal is used in the form of turnings, raspings, granules, chips, dusts or powders.
21. The process according to claim 20, wherein said magnesium metal is used as a finely divided powder.
22. The process according to claim 20, wherein said magnesium metal is activated, prior to being used, by grinding, agitating or cutting processes, ultrasonication, heating in a vacuum, or by the addition of activating agents.
23. The process according to claim 22, wherein said magnesium metal is activated by the addition of iodine.
24. The process according to claim 20, wherein said magnesium metal is activated, while the reaction is performed, by grinding, agitating or cutting processes or ultrasonication.

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